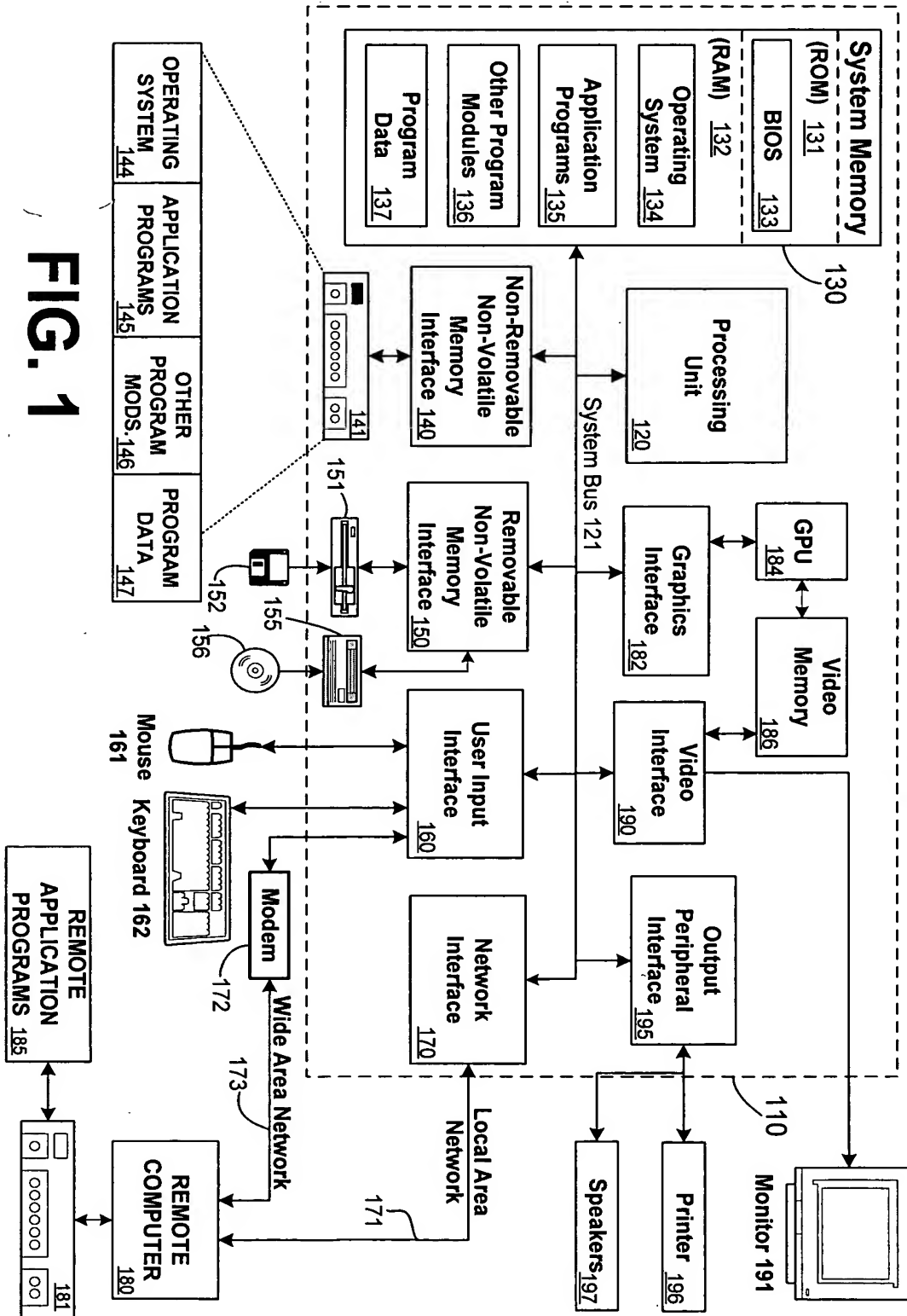
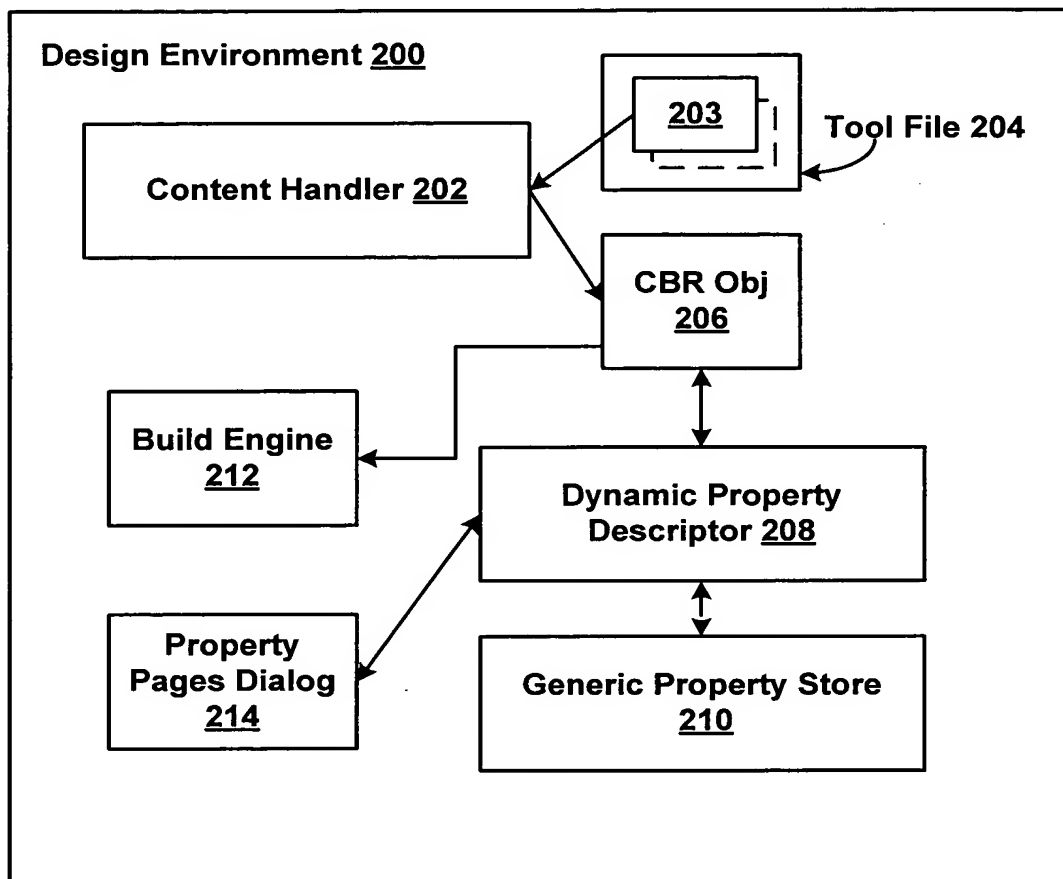


# Computing Environment 100



**Computer 202**



**FIG. 2**

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```

<?xml version="1.0" encoding="utf-8"?>
<VisualStudioToolFile
  Name="Sample Tool File"
  >
  <Rules>
    <CustomBuildRule
      Name="Sample Rule"
      DisplayName="Sample Rule"
      CommandLine="mytool.exe [SearchPaths] [WarningLevel]
[IterationCount] [WarningsAsErrors] [SearchString] [Inputs]"
      Outputs="$(InputName).bar"
      FileExtensions="*.foo"
      ExecutionDescription="Executing sample rule..."
      SupportsFileBatching="true"
      BatchingSeparator=" "
      ShowOnlyRuleProperties="true"
    >
    <Properties>
      <StringProperty
        Name="SearchPaths"
        DisplayName="Search Paths"
        Description="The semi-colon
delimited list of paths to search."
msdn.microsoft.com"
        HelpURL="http://
Switch="/P [value]"
Delimited="true"
Inheritable="true"
      />
      <EnumProperty
        Name="WarningLevel"
        DisplayName="Warning Level"
        PropertyPageName="Advanced"
        Description="Sets the warning level.
Level 1 is the lowest. Level 4 is the highest."
msdn.microsoft.com"
        HelpURL="http://
      >
      <Values>
        <EnumValue
          Value="0"
          Switch="/W1"
          DisplayName="Warning Level 1"
        />
      </Values>
    </Properties>
  </CustomBuildRule>
  </Rules>
  </VisualStudioToolFile>

```

FIG. 3a

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```

                                <EnumValue
                                    Value="1"
                                    Switch="/W2"

DisplayName="Warning Level 2"
                                />
                                <EnumValue
                                    Value="2"
                                    Switch="/W3"

DisplayName="Warning Level 3"
                                />
                                <EnumValue
                                    Value="3"
                                    Switch="/W4"

DisplayName="Warning Level 4"
                                />
                                </Values>
                                </EnumProperty>
                                <IntegerProperty
                                    Name="IterationCount"
                                    DisplayName="Iteration Count"
                                    Description="Specifies the number of
iterations performed by the tool."
                                    HelpURL="http://msdn.microsoft.com"
                                    Switch="/count:[value]"
                                    DefaultValue="1"
                                />
                                <BooleanProperty
                                    Name="WarningsAsErrors"
                                    DisplayName="Warnings As Errors"
                                    PropertyPageName="Advanced"
                                    Description="If set to true, warnings will
be treated as errors."
                                    HelpURL="http://msdn.microsoft.com"
                                    Switch="/warnaserror"
                                />

```

**FIG. 3b**

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search for"

msdn.microsoft.com"

<StringProperty

Name="SearchString"

DisplayName="Search String"

Description="Specifies the string to

HelpURL="http://

Switch="/search:[value]"

Delimited="true"

>

</Properties>

</CustomBuildRule>

</Rules>

</VisualStudioToolFile>

**FIG. 3c**

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```
<?xml version="1.0" encoding="utf-8" ?>
<xs:schema xmlns:xs="http://www.w3.org/2001/XMLSchema">
  <xs:element name="VisualStudioToolFile" type="VisualStudioToolFile" />
  <xs:complexType name="VisualStudioToolFile">
    <xs:choice minOccurs="0" maxOccurs="1">
      <xs:element name="Rules" maxOccurs="1"
minOccurs="0">
        <xs:complexType>
          <xs:sequence
maxOccurs="unbounded" minOccurs="0">
            <xs:element
name="CustomBuildRule" type="CustomBuildRule" />
          </xs:sequence>
        </xs:complexType>
      </xs:element>
    </xs:choice>
    <xs:attribute name="Name" type="xs:string" use="required" />
  </xs:complexType>
  <xs:complexType name="CustomBuildRule">
    <xs:sequence>
      <xs:element name="Properties" maxOccurs="1"
minOccurs="0">
        <xs:complexType>
          <xs:choice minOccurs="0"
maxOccurs="unbounded">
            <xs:element
name="StringProperty" type="StringProperty" />
            <xs:element
name="EnumProperty" type="EnumProperty" />
            <xs:element
name="BooleanProperty" type="BooleanProperty" />
            <xs:element
name="IntegerProperty" type="IntegerProperty" />
          </xs:choice>
        </xs:complexType>
      </xs:element>
    </xs:sequence>
    <xs:attribute name="Name" type="xs:string" use="required" />
    <xs:attribute name="DisplayName" type="xs:string" use="optional" />
    <xs:attribute name="CommandLine" type="xs:string" use="required" />
    <xs:attribute name="Outputs" type="xs:string" use="required" />
    <xs:attribute name="AdditionalDependencies" type="xs:string"
use="optional" />
  </xs:complexType>
</xs:schema>
```

**FIG. 4a**

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```

        <xs:attribute name="FileExtensions" type="xs:string" use="required" />
        <xs:attribute name="ExecutionDescription" type="xs:string" use="optional"
default="Executing tool..." />
        <xs:attribute name="SupportsFileBatching" type="xs:boolean"
use="optional" />
        <xs:attribute name="BatchingSeparator" type="xs:string" use="optional"
default=" " />
        <xs:attribute name="ShowOnlyRuleProperties" type="xs:boolean"
use="optional" default="false" />
    </xs:complexType>
    <xs:complexType name="StringProperty">
        <xs:complexContent>
            <xs:extension base="Property">
                <xs:sequence>
                    <xs:attribute name="Switch" type="xs:string"
use="optional" />
                    <xs:attribute name="DefaultValue" type="xs:string"
use="optional" />
                    <xs:attribute name="Delimited" type="xs:boolean"
use="optional" default="false" />
                    <xs:attribute name="Delimiters" type="xs:string"
use="optional" default=";" />
                    <xs:attribute name="Inheritable" type="xs:boolean"
use="optional" default="false" />
                </xs:sequence>
            </xs:extension>
        </xs:complexContent>
    </xs:complexType>
    <xs:complexType name="EnumProperty">
        <xs:complexContent>
            <xs:extension base="Property">
                <xs:sequence>
                    <xs:element name="Values"
minOccurs="1" maxOccurs="1">
                        <xs:complexType>
                            <xs:sequence>
                                <xs:element name="EnumValue" type="EnumValue" />
                            </xs:sequence>
                        </xs:complexType>
                    </xs:element>
                </xs:sequence>
                <xs:attribute name="DefaultValue"
type="xs:integer" use="optional" default="0" />
            </xs:extension>
        </xs:complexContent>
    </xs:complexType>

```

**FIG. 4b**

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```

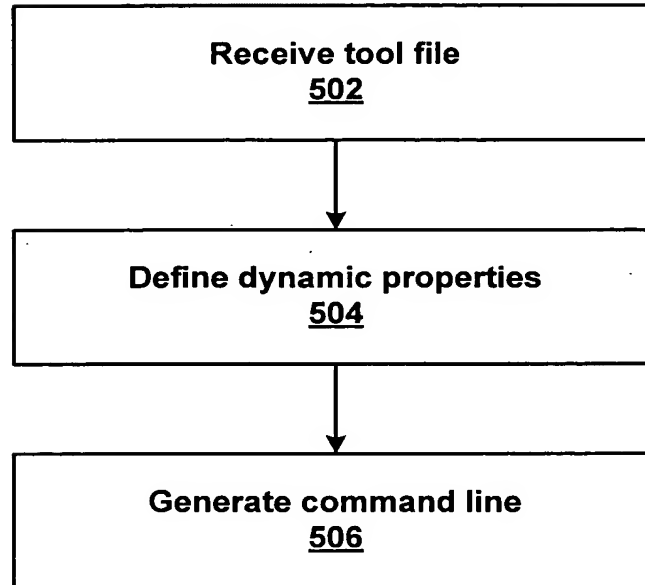
<xs:complexType name="EnumValue">
  <xs:sequence />
  <xs:attribute name="Switch" type="xs:string" use="optional" />
  <xs:attribute name="Value" type="xs:integer" use="required" />
  <xs:attribute name="DisplayName" type="xs:string" use="optional" />
</xs:complexType>
<xs:complexType name="BooleanProperty">
  <xs:complexContent>
    <xs:extension base="Property">
      <xs:sequence />
      <xs:attribute name="Switch" type="xs:string"
use="optional" />
      <xs:attribute name="DefaultValue"
type="xs:boolean" use="optional" default="false" />
    </xs:extension>
  </xs:complexContent>
</xs:complexType>
<xs:complexType name="IntegerProperty">
  <xs:complexContent>
    <xs:extension base="Property">
      <xs:sequence />
      <xs:attribute name="Switch" type="xs:string"
use="optional" />
      <xs:attribute name="DefaultValue"
type="xs:integer" use="optional" default="0" />
    </xs:extension>
  </xs:complexContent>
</xs:complexType>
<xs:complexType name="Property">
  <xs:sequence></xs:sequence>
  <xs:attribute name="Name" type="xs:string" use="required" />
  <xs:attribute name="IsReadOnly" type="xs:boolean" use="optional"
default="false" />
  <xs:attribute name="DisplayName" type="xs:string" use="optional" />
  <xs:attribute name="Description" type="xs:string" use="optional" />
  <xs:attribute name="PropertyPageName" type="xs:string" use="optional"
default="General" />
  <xs:attribute name="Category" type="xs:string" use="optional" />
  <xs:attribute name="HelpContext" type="xs:integer" use="optional" />
  <xs:attribute name="HelpFile" type="xs:string" use="optional" />
  <xs:attribute name="HelpURL" type="xs:string" use="optional" />
</xs:complexType>
</xs:schema>

```

**FIG. 4c**

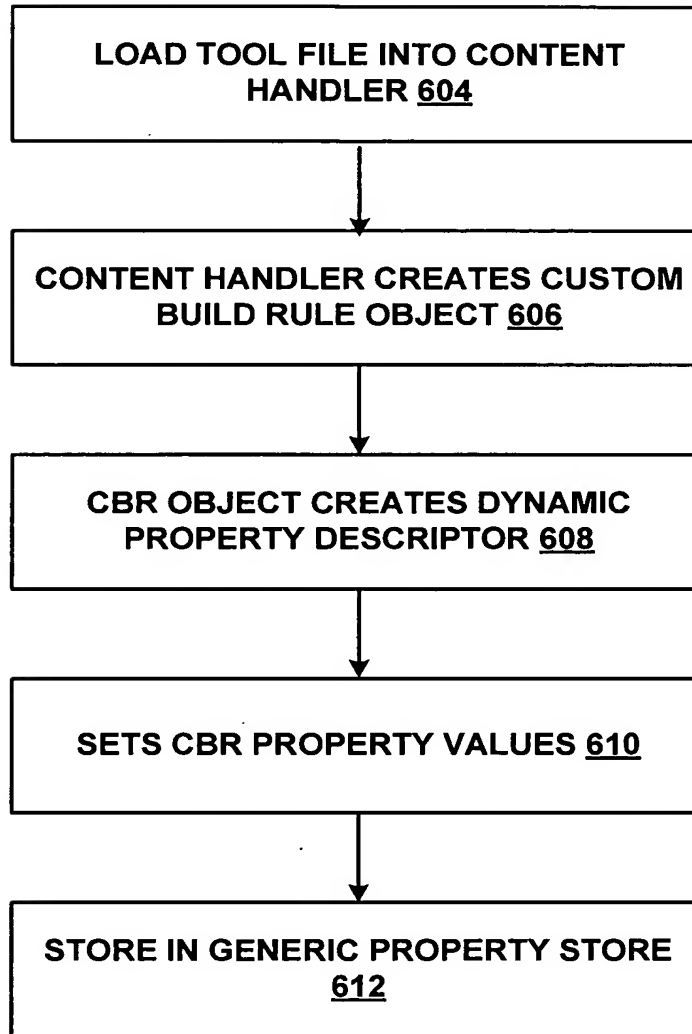


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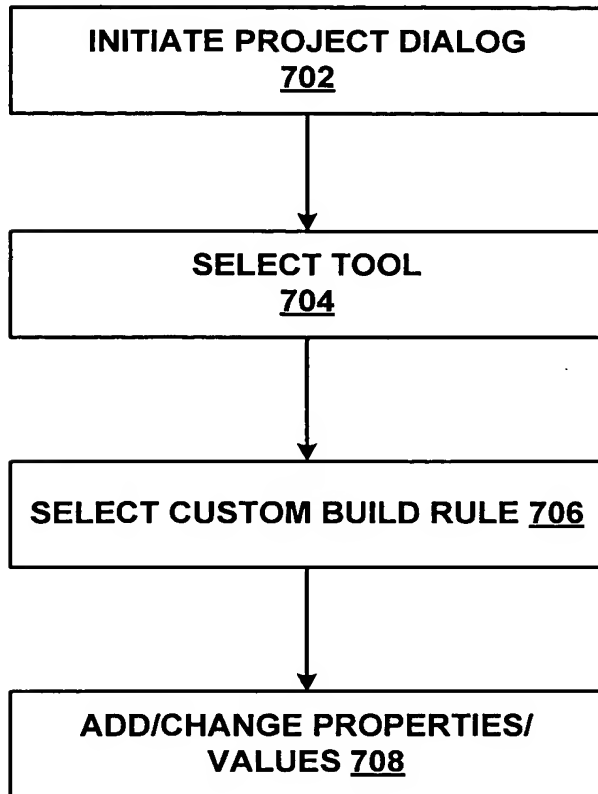


**FIG. 5**

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**FIG. 6**



**FIG. 7**

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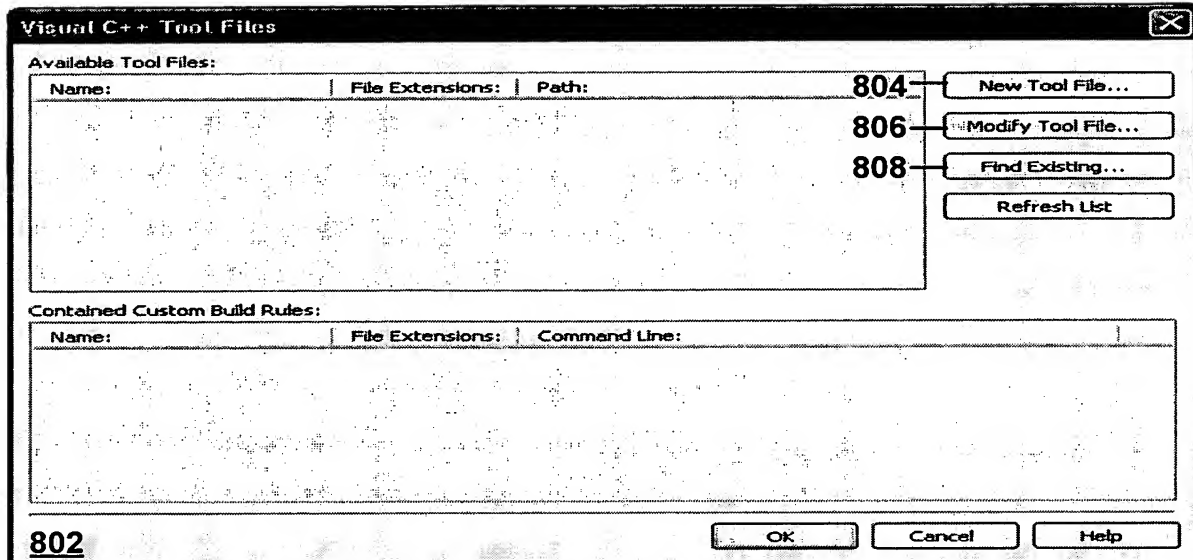


FIG. 8a

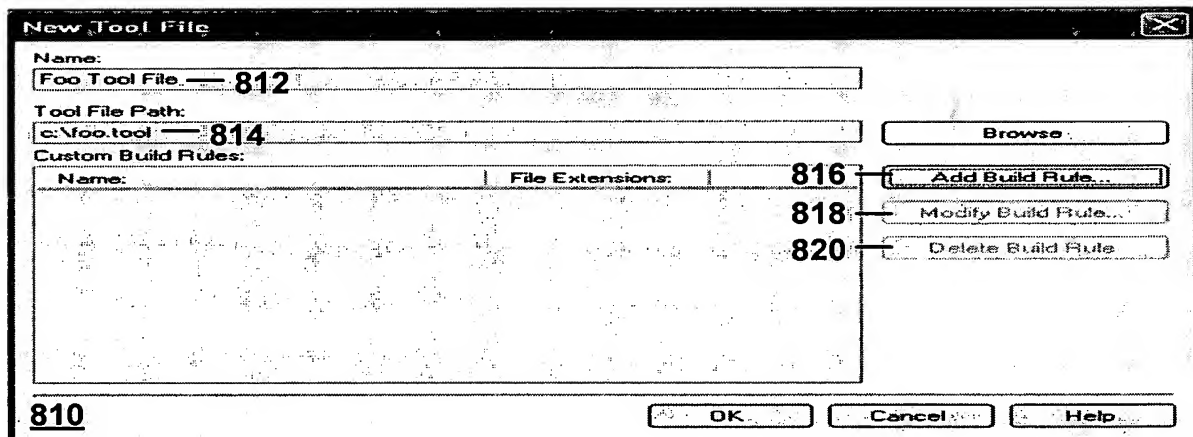


FIG. 8b

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**Add Custom Build Rule**

Custom Build Rule Properties:

Additional Dependencies	
Batching Separator	
Command Line	foo.exe [IncludeDirectories] [WarnAsError] [imp
Display Name	Foo
Execution Description	Running foo tool...
File Extensions	*.foo
Name	Foo Custom Build Rule — 824
Outputs	output.bar
Show Only Rule Properties	True
Supports File Batching	False
Target Rule	True

**Name**  
The name of the build rule. The name must be unique among the custom build rules in the tool file.

User Defined Properties:

Name:	Type:	Switch:

828 Add Property...  
830 Modify Property...  
832 Delete Property...

822 OK Cancel Help

FIG. 8c

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**Add User Property**

Property Type: ☒ String ☐ Integer ☐ Enum ☐ Boolean

Category	
Default Value	
Delimited	True
Delimiters	842 — ..
Description	838 — Specifies the include directories for the tool.
Display Name	Include Directories
Help Context	0
Help File	
Help URL	http://msdn.microsoft.com
Inheritable	False
Is Read Only	False
Name	836 — IncludeDirectories
Property Page Name	844 — General
Switch	840 — /I [value]

**Description**  
The description for the property. The description appears in the property grid where this text appears:  
847

Enum Values:

Value:	Switch:

846

Add Enum Value...  
Modify Enum Value...  
Delete Enum Value

834

OK Cancel Help

FIG. 8d

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**Add User Property** [X]

Property Type: ☐ String ☐ Integer ☐ Enum ☒ Boolean

Category	
Default Value	False
Description	Treats warnings as errors.
Display Name	Warnings As Errors
Help Context	0
Help File	
Help URL	http://msdn.microsoft.com
Is Read Only	False
Name	850 WarnAsError
Property Page Name	852 Advanced
Switch	854 /warnaserror

**Description**  
The description for the property. The description appears in the property grid where this text appears.

Enum Values:

Value:	Switch:

Add Enum Value...  
Modify Enum Value...  
Delete Enum Value

848 [OK] [Cancel] [Help]

FIG. 8e

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### Add Custom Build Rule

Custom Build Rule Properties:

Additional Dependencies	
Batching Separator	
Command Line	foo.exe [IncludeDirectories] [WarnAsError] [inp
Display Name	Foo
Execution Description	Running foo tool...
File Extensions	*.foo
Name	Foo Custom Build Rule
Outputs	output.bar
Show Only Rule Properties	True
Supports File Batching	False
Target Rule	True

**Name**  
The name of the build rule. The name must be unique among the custom build rules in the tool file.

User Defined Properties:

Name:	Type:	Switch:
IncludeDirectories	string	/I [value]
WarnAsError	boolean	/warnaserror

858

856

OK Cancel Help

Add Property...  
Modify Property...  
Delete Property

FIG. 8f

### New Tool File

Name:  
Foo Tool File

Tool File Path:  
c:\foo.tool

Custom Build Rules:

Name:	File Extensions:
Foo Custom Build Rule	*.foo

860

862

OK Cancel Help

Browse  
Add Build Rule...  
Modify Build Rule...  
Delete Build Rule

FIG. 8g



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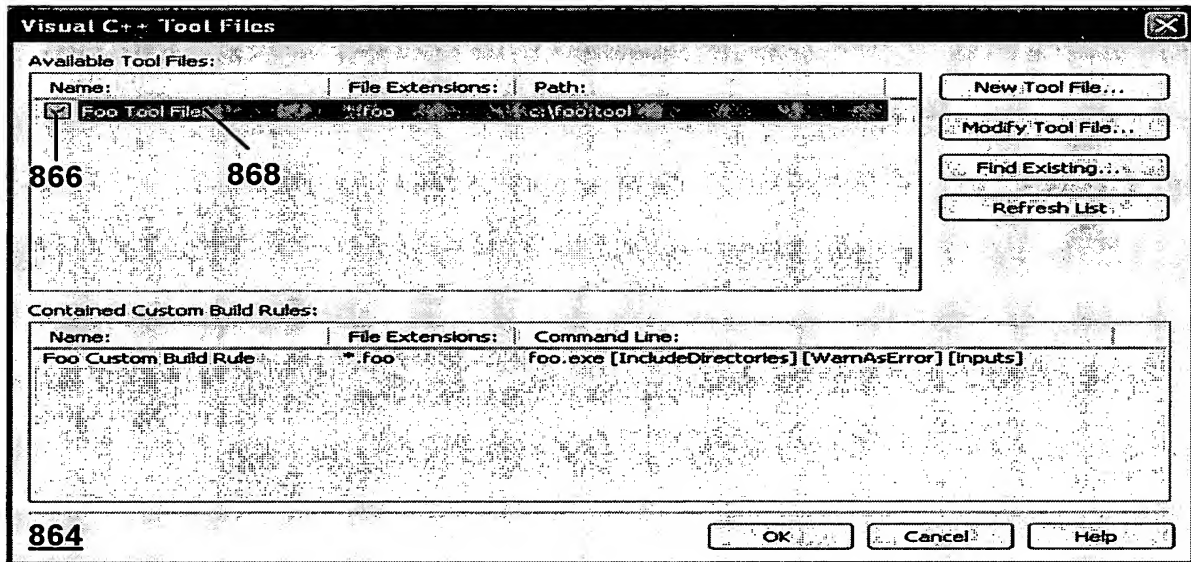


FIG. 8h

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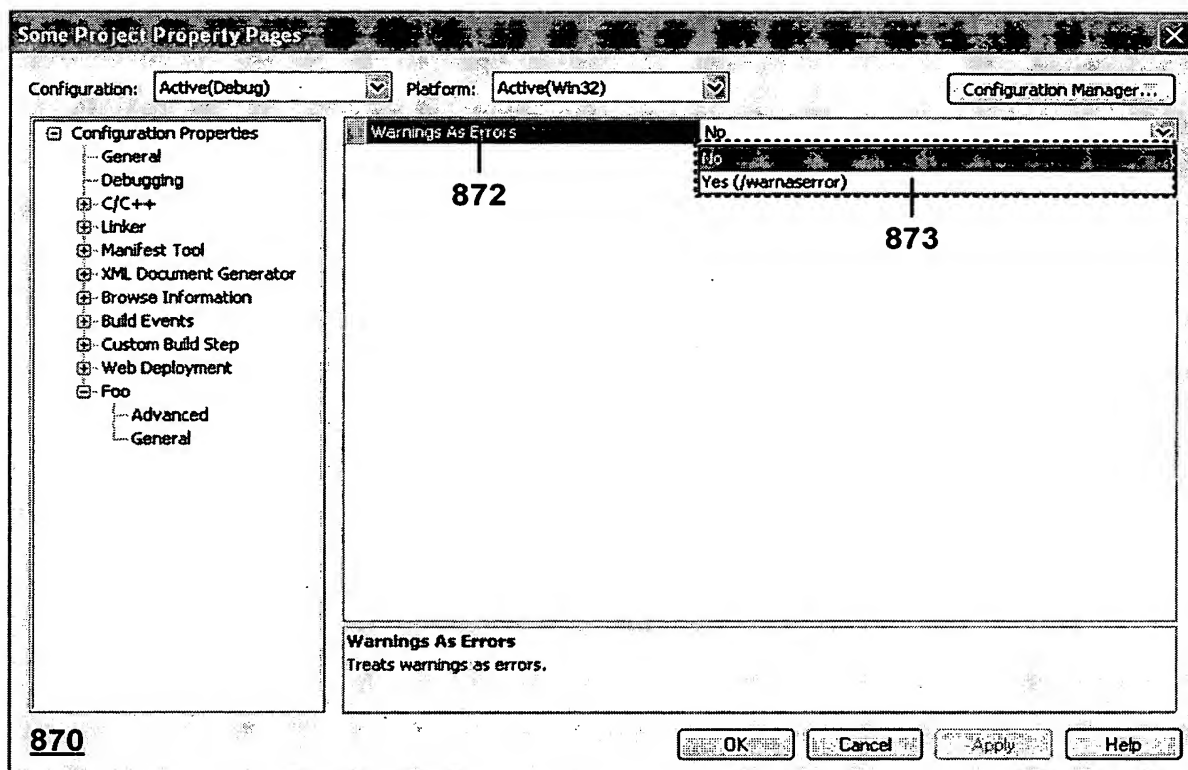


FIG. 8i

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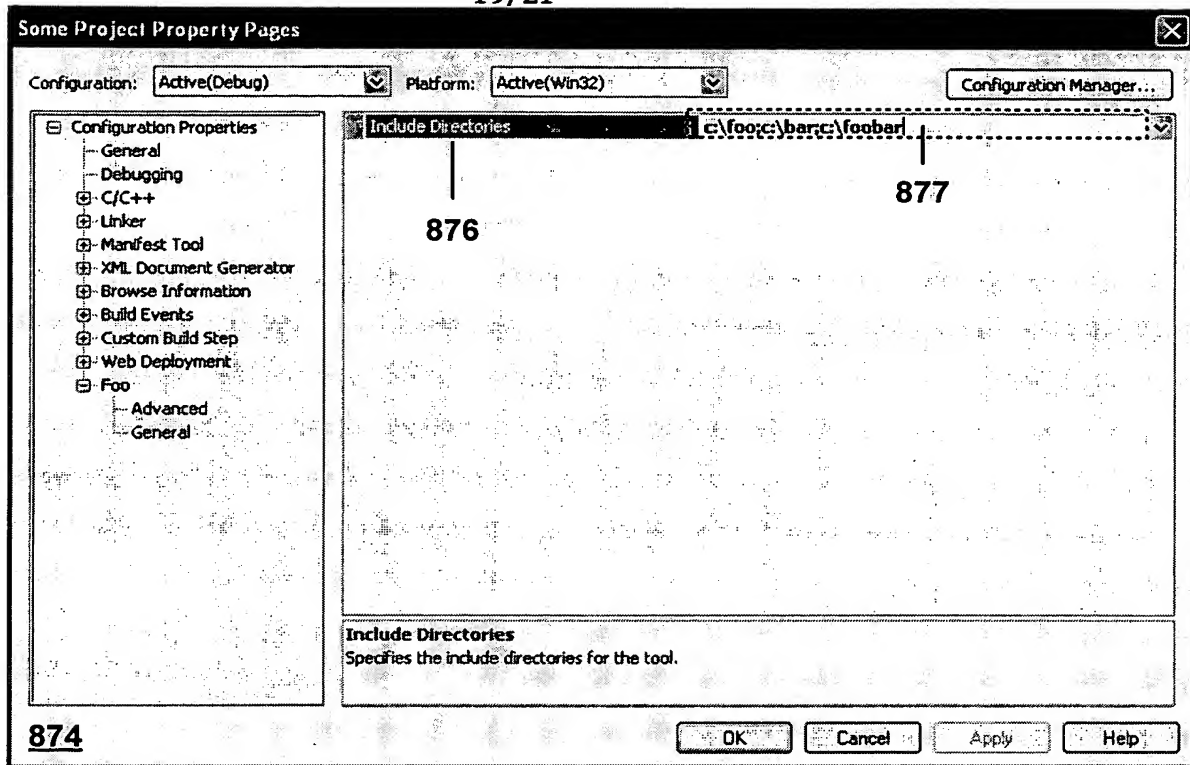


FIG. 8j

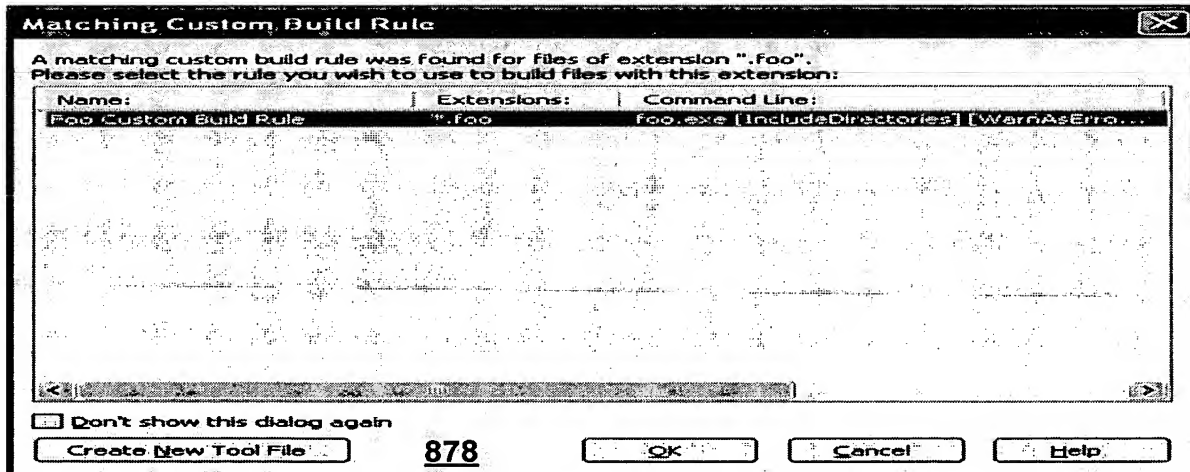
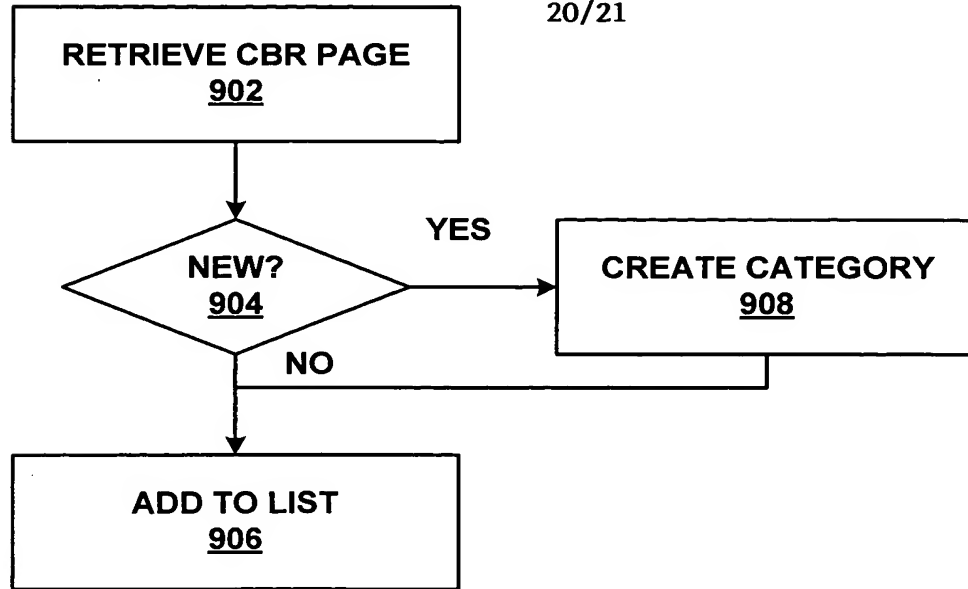


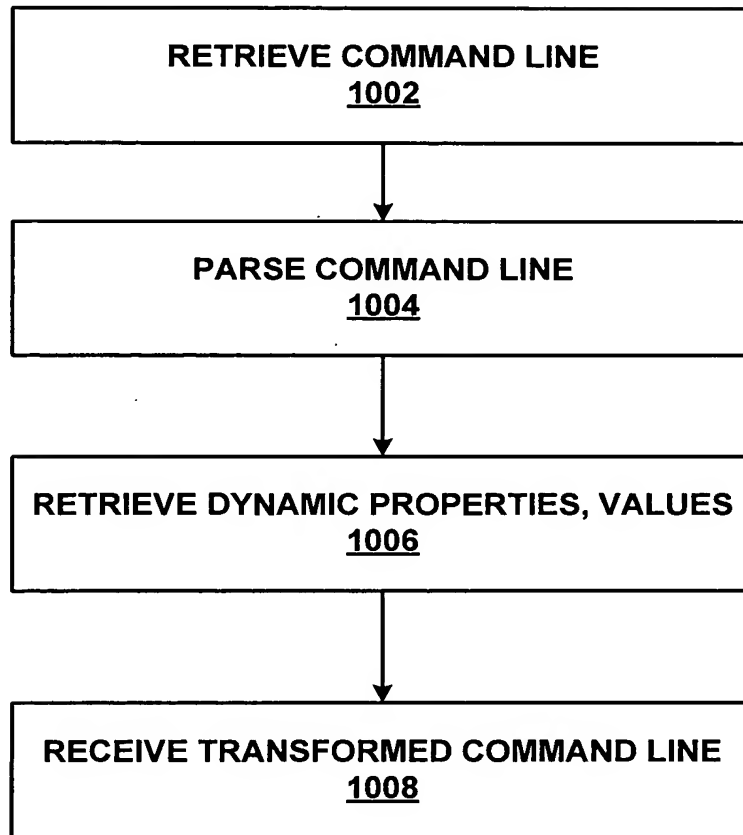
FIG. 8k

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**FIG. 9**

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**FIG. 10**